

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF: William M. CANFIELD

SERIAL NO: New U.S. Application

FILED: Herewith

FOR: GLCNAC PHOSPHOTRANSFERASE OF THE LYSOSOMAL TARGETING PATHWAY

INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR 1.97

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313

SIR:

Applicant(s) wish to disclose the following information.

REFERENCES

- The applicant(s) wish to make of record the references listed on the attached form PTO-1449 were mentioned in Parent Application, Serial No. 09/636,060, filed August 10, 2000.
- A check is attached in the amount required under 37 CFR §1.17(p).

RELATED CASES

- Attached is a list of applicant's pending application(s) or issued patent(s) which may be related to the present application. A copy of the patent(s), together with a copy of the claims and drawings of the pending application(s) is attached along with PTO 1449.
- A check is attached in the amount required under 37 CFR §1.17(p).

CERTIFICATION

- Each item of information contained in this information disclosure statement was first cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this statement.
- No item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application or, to the knowledge of the undersigned, having made reasonable inquiry, was known to any individual designated in 37 CFR §1.56(c) more than three months prior to the filing of this statement.

DEPOSIT ACCOUNT

- Please charge any additional fees for the papers being filed herewith and for which no check or credit card payment form is enclosed herewith, or credit any overpayment to deposit account number 15-0030. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Richard L. Chinn, Ph.D.
Registration No. 34,305



22850

Tel. (703) 413-3000
Fax. (703) 413-2220

Daniel J. Pereira, Ph.D.
Registration No. 45,518

Form PTO 1449 (Modified)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY DOCKET NO. 241990US77DIV	SERIAL NO. NEW APPLICATION		
LIST OF REFERENCES CITED BY APPLICANT		APPLICANT WILLIAM M. CANFIELD					
		FILING DATE HEREWITH		GROUP			
U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
	AA	5,968,502	10/19/99	TRECO ET AL			
	AB	5,055,401	10/08/91	LILJESTROEM ET AL			
	AC	5,202,253	04/13/93	ESMON ET AL			
	AD	5,929,304	07/27/99	RADIN ET AL			
	AE	5,580,757	12/03/96	DESNICK ET AL			
	AE	5,356,804	10/18/94	DESNICK ET AL			
	AC	5,401,650	03/28/95	DESNICK ET AL			
	AH						
	AI						
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	AM						
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FOREIGN PATENT DOCUMENTS							
		DOCUMENT NUMBER	DATE	COUNTRY	TRANSLATION YES	NO	
	AD						
	AR						
	AD						
	AR						
	AS						
	AT						
	AU						
	AV						
OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, etc.)							
	AW	SLY, "THE MISSING LINK IN LYSOSMAL ENZYME TARGETING", THE JOURNAL OF CLINICAL INVESTIGATION, VOL. 105, NO. 5, PAGES 563-564, MARCH 2000					
	AX	RAAS-ROTHSCHILD ET AL, "MOLECULAR BASIS OF VARIANT PSEUDO-HURLER POLYDYSTROPHY (MUCOLIPIDOSIS IIIC)", THE JOURNAL OF CLINICAL INVESTIGATION, VOL. 105, NO. 5, PP. 573-581, MARCH 2000					
	AY	BAO ET AL, "BOVINE UDP-N-ACETYLGLUCOSAMINE: LYSOSMAL-ENZYME N-ACETYLGLUCOSAMINE-1-PHOSPHOTRANSFERASE", THE JOURNAL OF BIOLOGICAL CHEMISTRY, VOL. 271, NO. 49, PP. 31446-31451, DECEMBER 6, 1996					
	AZ	KORNFIELD, "PURIFICATION AND MULTIMERIC STRUCTURE OF BOVINE N-ACETYLGLUCOSAMINE-1-PHOSPHODIESTER α -N-ACETYLGLUCOSAMINIDASE", THE JOURNAL OF BIOLOGICAL CHEMISTRY, VOL. 273, NO. 36, PP. 23203-23210, SEPTEMBER 4, 1998					
Examiner				Date Considered			
*Examiner: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.							

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		FILING DATE		Herewith	
U.S. PATENT DOCUMENTS					
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS
	BA	6,116,045	09/12/045	REUSER ET AL	
	BB	5,939,279	08/17/99	SMITH	
	BC	5,932,211	08/03/99	WILSON ET AL	
	BD	5,929,036	07/27/99	McEVER	
	BE	5,928,928	07/27/99	AERTS	
	BP	5,919,913	07/06/99	NUYENS ET AL	
	BC	5,919,690	07/06/99	KNAP ET AL	
	BH	5,917,122	06/29/99	BYRNE	
	BI	5,916,911	06/29/99	SHAYMAN EET AL	
	BJ	5,916,911	06/29/99	LEE ET AL	
	BK	5,914,231	06/22/99	HENNINK ET AL	
	BL	5,912,146	06/15/99	NISHIMURA ET AL	
	BM	5,911,704	06/15/99	HUMES	
	BN	5,906,817	05/25/99	MOULLIER ET AL	
FOREIGN PATENT DOCUMENTS					
		DOCUMENT NUMBER	DATE	COUNTRY	TRANSLATION YES NO
	BO				
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	BP				
	BS				
	BT				
	BU				
	BV				
OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, etc.)					
	BW	Alan D. Elbeln et al., "KIFUNENSINE, A POTENT INHIBITOR OF THE GLYCOPROTEIN PROCESSING MANNOSIDASE I", The Journal of Biological Chemistry, Vol. 265, No. 26, Issue of September 15, pp. 15599-15605, 1990.			
	BX	Karen Gheesling MULLIS, et al., "Characterization and Immunolocalization of Bovine N-Acetylglucosamine-1-phosphodiester α -N-Acetylglucosaminidase", The Journal of Biological Chemistry, Vol. 269, No. 3, Issue of January 21, pp.1727-1733, (1994)			
	BX	Jin Kyu LEE, et al., "Purification and Characterization of Human Serum N-Acetylglucosamine-1-phosphodiester α -N-Acetylglucosaminidase", Archives of Biochemistry and Biophysics, Vol. 319, No. 2, June 1, pp. 413-425, (1995)			
	BZ				
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U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
CA	5,895,833	04/20/99	BERG			
CB	5,879,937	03/09/99	RONCAROLO			
CC	5,874,297	02/23/99	WU ET AL			
CD	5,871,946	02/16/99	LUCAS ET AL			
CE	5,861,491	01/19/99	NIJENJS ET AL			
CP	5,858,755	01/12/99	LOWE			
CC	5,858,744	01/12/99	BAUM ET AL			
CH	5,858,351	01/12/99	PODSAKOFF ET AL			
CI	5,854,207	12/29/98	LEE ET AL			
CJ	5,851,782	12/22/98	HANNUN ET AL			
CK	5,849,885	12/15/98	NUYENS ET AL			
CL	5,840,578	11/24/98	DESNICK			
CM	5,830,916	11/03/98	HANNUN ET AL			
CN	5,830,850	11/03/98	GELB ET AL			

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	TRANSLATION YES	NO
CO					
CP					
CQ					
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CS					
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CU					
CV					

OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, etc.)

CW	R. O. BRADY, et al., "Modifying Exogenous Glucocerebrosidase for Effective Replacement Therapy in Gaucher", J. Inher. Metab. Dis., Vol. 17, (1994), pp. 510-519
CY	Emil D. KAKKIS, et al., "Overexpression of the Human Lysosomal Enzyme α -L-Iduronidase in Chinese Hamster Ovary Cells", Protein Expression and Purification, Vol. 5, (1994), pp.225-232
CY	Ke-Wei ZHAO, et al., "Carbohydrate Structures of Recombinant Human α -L-Iduronidase Secreted by Chinese Hamster Ovary Cells", The Journal of Biological Chemistry, Vol. 272, No. 35, Issue of September 5, pp.22758-22765 (1997)
CZ	Robin J. ZIEGLER, et al., "Correction of Enzymatic and Lysosomal Storage Defects in Fabry Mice by Adenovirus-Mediated Gene Transfer", Human Gene Therapy, Vol. 10, pp.1667-1682, (July 1, 1999)

Examiner	Date Considered
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U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
	DA	5,830,711	11/03/98	BARANY ET AL			
	DB	5,807,943	09/15/98	LEE ET AL			
	DG	5,798,448	08/25/98	CARAS ET AL			
	DD	5,798,239	08/25/98	WILSON ET AL			
	DE	5,792,647	08/11/98	ROSEMAN ET AL			
	DE	5,773,236	06/30/98	DIWU ET AL			
	DG	5,759,775	06/02/98	CARAS ET AL			
	DH	5,750,172	05/12/98	MEADE ET AL			
	DI	5,741,957	04/21/98	DEBOER ET AL			
	DJ	5,736,360	04/07/98	GAULTON ET AL			
	DK	5,728,381	03/17/98	WILSON ET AL			
	DL	5,723,585	03/03/98	BAKER ET AL			
	DM	5,721,367	02/24/98	KAY ET AL			
	DN	5,719,031	02/17/98	HAUGLAND ET AL			
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OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, etc.)							
	DW	Huailchang SUN, et al., "Retrovirus Vector-Mediated Correction and Cross-Correction of Lysosomal α -Mannosidase Deficiency in Human and Feline Fibroblasts", Human Gene Therapy, Vol. 10, pp. 1311-1319, (May 20, 1999)					
	DX	Ajj REUSER, et al., "Lysosomal storage diseases: cellular pathology, clinical and genetic heterogeneity, therapy", Ann Biol Clin, (1994), Vol. 52, pp. 721-728					
	DX						
	DZ						
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		U.S. PATENT DOCUMENTS					
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
	EA	5,716,614	02/10/98	KATZ ET AL			
	EB	5,707,865	01/13/98	KOHN ET AL			
	EC	5,704,910	06/06/98	HUMES			
	ED	5,695,001	12/09/97	HABENSTEIN			
	EE	5,693,622	12/02/97	WOLFF ET AL			
	EF	5,691,181	11/25/97	LOWE			
	EG	5,686,240	11/11/97	SCHUCHMAN ET AL			
	EH	5,679,545	10/21/97	BAKER ET AL			
	EI	5,665,366	09/09/97	RAWLINGS ET AL			
	EJ	5,663,254	09/02/97	LEE ET AL			
	EK	5,663,076	09/02/97	ROSTOKER ET AL			
	EL	5,658,567	08/19/97	CALHOUN ET AL			
	EM	5,648,335	07/15/97	LEWIS ET AL			
	EN	5,648,229	07/15/97	HABENSTEIN			
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EXAMINER INITIAL.		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
	FA	5,639,939	06/17/97	McCUNE, III			
	FO	5,639,607	06/17/97	DESNICK ET AL			
	FG	5,633,261	05/27/97	DIME			
	FO	5,633,228	05/27/97	LEWIS ET AL			
	FF	5,627,171	05/06/97	PARK ET AL			
	FF	5,627,073	05/06/97	BAKER ET AL			
	FG	5,624,806	04/29/97	BAKER ET AL			
	FH	5,621,106	04/15/97	DIME			
	FI	5,612,206	03/18/97	VALERIO ET AL			
	FJ	5,585,247	12/17/96	HABENSTEIN			
	FK	5,583,160	12/10/96	IGARASHI ET AL			
	FL	5,576,479	11/26/96	LADERMAN ET AL			
	FM	5,576,424	11/19/96	MAO ET AL			
	FN	5,571,893	11/05/96	BAKER ET AL			

FOREIGN PATENT DOCUMENTS

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	FO					
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OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, etc.)

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Examiner

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U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
	GA	5,571,675	11/05/96	BAKER ET AL			
	GB	5,569,648	10/29/96	LEWIS ET AL			
	GC	5,565,362	10/15/96	ROSEN			
	GD	5,554,366	09/10/96	RAWLINGS ET AL			
	GF	5,545,402	08/13/96	WATKINSON			
	GF	5,534,615	07/09/96	BAKER ET AL			
	GG	5,512,471	04/30/96	SMITH			
	GH	5,501,957	03/26/96	DENNIS ET AL			
	GI	5,494,810	02/27/96	BARANY ET AL			
	GJ	5,491,075	02/13/96	DESNICK ET AL			
	GK	5,475,095	12/12/95	MYEROWITZ			
	GL	5,466,809	11/14/95	DIME			
	GM	5,449,804	09/12/95	SCHELLENBERG ET AL			
	GN	5,443,986	08/22/95	HAUGHLAND ET AL			
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LIST OF REFERENCES CITED BY APPLICANT		APPLICANT	William M. CANFIELD
		FILING DATE	Herewith
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U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
HA	5,439,935	08/08/95	RAWLINGS ET AL			
HB	5,433,946	07/18/95	ALLEN, JR. ET AL			
HC	5,420,112	05/30/95	LEWIS ET AL			
HD	5,405,751	04/11/95	RONCAROLO			
HE	5,382,524	01/17/95	DESNICK ET AL			
HF	5,366,883	11/22/94	ASADA ET AL			
HG	5,362,628	11/08/94	HAUGLAND			
HH	5,344,352	09/06/94	HORNE ET AL			
HI	5,316,906	05/31/94	HAUGLAND ET AL			
HJ	5,310,646	05/10/94	WHITLEY			
HK	5,296,365	03/22/94	OVERBEEKE ET EA			
HL	5,281,394	01/25/94	HOLUB			
HM	5,260,447	11/09/93	NAKAJIMA ET AL			
HN	5,242,805	09/07/93	NALEWAY ET AL			

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	TRANSLATION YES	NO
HO					
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Form PTO 1448 (Modified)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY DOCKET NO. 241990US77DIV	SERIAL NO. New U.S. Application		
LIST OF REFERENCES CITED BY APPLICANT		APPLICANT		William M. CANFIELD			
		FILING DATE		Herewith		GROUP	
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EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
IA		5,217,865	01/08/93	MYEROWITZ			
IB		5,208,148	05/04/93	HAUGLAND ET AL			
IC		5,205,917	04/27/93	KLOCK, JR.			
ID		5,179,023	01/12/93	CALHOUN ET AL			
IE		5,166,320	11/24/92	WU ET AL			
IE		5,143,841	09/01/92	HIRABAYASHI ET AL			
IG		5,126,247	06/30/92	PALMER ET AL			
IH		5,089,392	02/18/92	MILLER ET AL			
II		5,802,778	01/21/92	OVERBEEKE ET AL			
IJ		5,077,200	12/31/91	HABENSTEIN			
IK		5,075,231	12/24/91	MOREAU ET AL			
IL		5,061,025	10/29/91	MATTES ET AL			
IM		5,060,428	10/29/91	ARTHUR, JR. ET AL			
IN		5,015,470	05/14/91	GIBSON			
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JA	5,001,072	03/19/91	OLSON			
JB	4,997,760	03/05/91	HIRABAYASHI ET AL			
JC	4,987,223	01/22/91	CHOAY ET AL			
JD	4,986,274	01/22/91	STEPHENHS			
JP	4,981,801	01/01/91	SUZUKI ET AL			
JP	4,975,441	12/04/90	GIBSON			
JG	4,866,042	09/12/89	NEUWELT			
JH	4,851,390	07/25/89	MORISHIGE			
JI	4,798,169	01/17/89	ROSEN ET AL			
JJ	4,749,570	06/07/88	POZNANSKY			
JK	4,659,817	01/27/87	GALLOP ET AL			
JL	4,639,420	01/27/87	SCHAFFNER			
JM	4,615,884	10/07/86	HARSHMAN			
JN	4,595,015	06/17/86	JANSEN ET AL			

FOREIGN PATENT DOCUMENTS

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KA		4,496,722	01/29/85	GALLOP ET AL			
KB		4,452,794	01/08/85	DURACK			
KE		4,474,770	10/02/84	LORMEAU ET AL			
KO		4,452,794	06/05/84	KORT ET AL			
KE		4,433,946	02/28/84	CHRISTIANSON ET AL			
KE		4,431,737	02/14/84	OLIVIERI ET AL			
KG		4,401,758	08/30/83	LORMEAU ET AL			
KH		4,401,662	08/30/83	LORMEAU ET AL			
KI		4,332,894	06/01/82	WHISTLER			
KJ		4,328,215	05/04/82	BUEDING			
KK		4,195,126	12/23/80	HALL			
KL		4,156,013	03/22/79	BRUINVELS ET AL			
KM		4,140,107	02/20/79	LANCEE ET AL			
KN		3,972,777	08/03/76	YAMADA ET AL			

FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	TRANSLATION YES	NO
KO						
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OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, etc.)

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Examiner	Date Considered
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		APPLICANT		William M. CANFIELD	
		FILING DATE		Herewith	
U.S. PATENT DOCUMENTS					
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS SUB CLASS FILING DATE IF APPROPRIATE
	LA	3,966,555	06/29/76	ARNAUD ET AL	
	LB	3,957,578	05/18/76	NARITA ET AL	
	LC	RE35,770	04/14/98	LORMEAU ET AL	
	LD	5,773,278	06/30/98	SCHUCHMAN ET AL	
	LE	5,798,368	08/25/98	PLATT ET AL	
	LE	5,635,383	06/03/97	WU ET AL	
	LG				
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FOREIGN PATENT DOCUMENTS					
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	LQ				
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	MU						
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OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, etc.)							
	MW	KORNFELD, R. et al. "Molecular Cloning and Functional Expression of Two Splice Forms of Human N-Acetylglucosamine-1-phosphodiester alpha-N-Acetylglucosaminidase" J. Biol. Chem. 12, November 1999. Vol. 274, No. 46, pages 32778-32785					
	MX	CUOZZO, J. W. et al. "Lysine is a Common Determinant for Mannose Phosphorylation of Lysosomal Proteins" J. Biol. Chem. 20, May 1994, Vol. 269, No. 20. Pages 14490-14495.					
	MY	KORNFELD, S. "Trafcking of Lysosomal Enzymes in Normal and Disease States", J. Clin. Invest., Vol. 77, January 1986, pp. 1-6.					
	MZ	KORNFELD, S. "Lysosomal Enzyme Targeting", Biochemical Society Transactions, Jubilee Lecture Delivered on 19 December 1989, Vol. 18, pp. 367-374					
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EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
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	NO	99/31117	06/24/99	WIPO	YES		NO
	NP						
	NO						
	NR						
OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, etc.)							
	NT	Ke-Wei ZHAO, et al., "Purification and characterization of human lymphoblast N-acetylglucosamine-1-phosphotransferase", Glycobiology, Vol. 2, no. 2, pp. 119-125, 1992					
	NT	Takahiro NAGASE, et al., "Prediction of the Coding Sequences of Unidentified Human Genes. XV. The Complete Sequences of 100 New(cDNA Clones from Brain Which Code for Large Proteins <i>In vitro</i> ", DNA Research, Vol. 6, pp. 337-345, 1999					
	NU	XP-002226188, "KIAA1208 protein (Fragment)", From Takahiro NAGASE, et al., "Prediction of the Coding Sequences of Unidentified Human Genes. XV. The Complete Sequences of 100 New(cDNA Clones from Brain Which Code for Large Proteins <i>In vitro</i> ", DNA Research, Vol. 6, pp. 337-345, 1999					
	NV	XP-002226187, "Basic domain/leucine zipper transcription factor (Fragment)", From CORDES, et al., "The mouse segmentation gene kr encodes a novel basic domain-leucine zipper transcription factor" (1994), Cell, Vol. 7, No. 9, pp. 1025-1034					
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OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, etc.)							
	OW	Theodore PAGE, et al., "Purification and characterization of human lymphoblast N-acetylglucosamine-1-phosphodiester alpha-N-acetylglucosaminidase", Glycobiology, Vol. 6, no. 6, pp. 619-626, 1996					
	OX	Thomas J. BARANSKI, et al., "Lysosomal Enzyme Phosphorylation", The Journal of Biological Chemistry, Vol. 267, No. 32, Issue of November 15, pp. 23342-23348, 1992					
	OY						
	OZ					<input type="checkbox"/> Additional References sheet(s) attached	
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FOREIGN PATENT DOCUMENTS					
		DOCUMENT NUMBER	DATE	COUNTRY	TRANSLATION YES NO
	PO				
	PP				
	PQ				
	PR				
	PS				
	PT				
	PU				
	PV				
OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, etc.)					
	PW	Ritva TIKKANEN, et al., "Several cooperating binding sites mediate the interaction of a lysosomal enzyme with phosphotransferase", The EMBO Journal, vol. 16, No. 22, pp. 6684-6693, 1997			
	PX	Fumito MATSUURA, et al., "Human alpha-galactosidase A: characterization of the N-linked oligosaccharides on the intracellular and secreted glycoforms overexpressed by Chinese hamster ovary cells", Glycobiology, vol. 8, no. 4, pp. 329-339, 1998			
	PY	Shiroh MAGUCHI, et al., "Elevated Activity and Increased Mannose-6-phosphate in the Carbohydrate Moiety of Cathepsin D from Human Hepatoma", Cancer Research, Vol. 48, pp. 362-367, January 15, 1988			
	PZ	Norman W. Barton, et al., "Therapeutic response to intravenous infusions of glucocerebrosidase in a patient with Gaucher disease", Proc. Natl. Acad. Sci. USA, Vol. 87, pp. 1913-1916, March 1990			
<input type="checkbox"/> Additional References sheet(s) attached					
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